Water / Wastewater Industry Division

Setting the Standard for Automation™

Calendar of WWID Events

Jan-Dec 2022	**WWID Connect Live virtual events** Dates TBD
Jun 12-15, 2022	AWWA ACE 2022
Summer 2022	**2022 Energy and Water Automation Conference (EWAC) –** Webinars
Oct 8-12, 2022	WEF WEFTEC 2022 (includes WEF LIFT Challenge (2022)

In this Issue:

Newsletter Winter 2022

Director's Welcome

Manoj Yegnaraman, Carollo Engineers Inc.

Welcome to our Water Wastewater Industries Division (WWID) – 2022 Winter Newsletter. While the COVID-19 pandemic has required many of us to modify our everyday workflow, the goal to provide clean water and waste management to our residents and communities hasn't changed. Thanks to all of you involved in our Water Wastewater industry for your flexibilities, diligence, planning and execution in maintaining and achieving this goal. Your day-to-day efforts have a direct positive impact in making this world a better place.

Our WWID's vision and mission are directly in line with the above goal. We have been planning and executing activities in order to constantly educate our members with the best automation practices for our W/WW industry, which eventually results in a reliable management and O&M of water and wastewater systems. Our division has provided such value in the form of our WWID newsletters, annual ISA EWAC conference/webinars (previously, WWAC symposium), ConnectLive sessions, technical content in Connect forums, blogs and content in our external platforms such as isawaterwastewater.com website and LinkedIn WWID group and partnering with the leading Water and Wastewater professional organizations such as AWWA and WEF.

Our 2022 WWID Business plan includes all the above activities for the coming year. … **(continued on page 2)**

Newsletter Editor's Welcome

Graham Nasby, City of Guelph Water Services

Welcome to our Winter 2022 newsletter. I am pleased to be writing this message with a healthy dose of optimism! Based on media reports, we are now (finally) starting to turn the corner when it comes to the global COVID-19 pandemic. After two difficult years – and let's be honest, it has been a slog – we are now finally starting to see a slow return to normal. Around the world, we are now starting to see a continued reduction in cases, increased vaccination rates, a continuing relaxation of public health measures, and a slow resumption of the many activities we know/love starting to resume. Things are finally looking up!

For myself, and many others, this has meant we can now finally resume many of our passions. In our personal lives, this now includes sport, music, and other community activities. For example, I was finally able to resume rehearsing with the community orchestra I normally play clarinet with. A colleague of mine was very much relieved to be now able to play in his weekly bowling league, and another friend is looking forward to re-starting his taekwondo programs. Likewise for those of who prefer to attend in person events and conferences as part of our day jobs. Our lives are finally starting to return to normal.

As we start to get back to more normal operations, I would encourage all of you to start to think about what activities you truly enjoy and which activities may…**(continued on page 2)**

WWID Director's Message
(continued from Page 1)

…We are starting off with this Winter newsletter, and planning for at least 3 more this year. Our newsletters are filled with technical articles, latest products and technologies, and Division activities. Our EWAC conference committee has been actively engaged with ISA to plan the 2022 conferences and events. We have executed an MOU with WEF for the 2022 LIFT water challenge and are actively working with AWWA/WEF to discuss incorporating WWID's involvement in their annual conferences (ACE and WEFTEC).

We have few Division Board Member updates as well. Our Board Member Jason Hamlin has accepted to serve as our Director-Elect-Elect and will be a part of our EWAC committee. We have added two new Board Members in 2022 – Joe Schaefer with Burns and McDonald and David Dlugos with Ashcroft. Thank you, Jason, Joe, and David!

My best wishes to all of you for a great year ahead.

Manoj Yegnaraman, PE
Director, ISA WWID
Vice President, Carollo Engineers Inc.
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Newsletter Editor's Welcome
(continued from Page 1)

…benefit from some editing. Whenever we are faced with changes in our lives, it is always a good time to reflect on what is working and when its time to make a change. Even little changes can sometimes have a very positive net effect on our lives. If you have not already done so, I would encourage you to try to become more active. The past 2 years of the pandemic (and being stuck inside) has cause some of us to not be in the best physical shape. Now is great time to make sure we all time some more time out for our overall wellbeing, as we start to make choices about what activities to resume, and what new habits to form.

Onto our newsletter, in our Winter 2022 newsletter, we have a number of technical articles. We start off with an article about the upcoming shutdown of 2G/3G wireless (cellular) networks, and how we need to ensure our SCADA systems are making the transition to LTE technology and beyond. This is then followed by an ISA news article about best practices for implementing cybersecurity programs, for SCADA systems in particular.

Our very-own Don Dickinson then presents an article about how electricity is poised to take on an even larger role in our society, as we start to make the long transition away from using carbon-based energy sources. This is then followed by a technical article by Samuel Ko Tak Shun of the Hong Kong Water Department about a recent instrumentation repair carried out on one of their water reservoirs.

Our newsletter provides an update on the 2022 LIFT Intelligent Water Systems Program, which is hosted by the Water Environment Federation (WEF) and is supported by many partner organizations including WEF and the ISA Water/Wastewater division. The year 2022 now marks the 10th anniversary of the ISA-WWID being involved with the LIFT Intelligent Water Systems Challenge.

Lastly, we include a welcome message form ISA's new 2022 Society President, Carlos Mandolesi. Carlos is a longtime ISA member who has been involved in multiple ISA technical divisions – so we welcome him to ISA's senior leadership team. Carlos assumed the role of 2022 Society President on January of this year and will remain in the role until the end of the year.

Please welcome me in welcoming us all to a New Year in 2022. Hopefully this will be the last we hear of the pandemic, as covid-19 continues to fade into the background.

Regards,

Graham Nasby, P.Eng.
WWID Newsletter Editor
graham.nasby@grahmanasby.com

WELCOME

Director Elect's Welcome

Hassan Ajami, PCI-Vetrix

Greetings to all of our WWID members! Everyone hoped that 2022 would be a better year, but it has been off to a rough start. New Covid strains, a rollercoaster stock market, and new conflicts have created havoc across the globe, and created new threats to the municipal and industrial sectors.

The unfortunate downside to the expanded use of technology across all industries is the increased susceptibility to virtual attacks. We've seen a dramatic rise in cyber hackers targeting all industries with ransomware and system takeover attempts. When conflicts break out, these attacks increase and target infrastructure such as water and power systems. We have to stay vigilant and keep systems updated and monitored to detect and thwart any attempts to access them.

On another note, as parts of the world shift into Springtime, the old saying about "April Showers" will soon come true. The wet season is upon us and wastewater collection and treatment systems will be stressed to handle the increased flows that we have been seeing. We have to focus on the reliability and accuracy of equipment across these systems to ensure that high flow events can be detected. That is the only way that operators will know how to respond. Advanced system-wide modeling also relies on "good data" and the instrumentation used must be up to the task.

We have started our planning for the annual Energy and Water Automation Conference which, due to COVID restrictions, will be a series of virtual webinars. We are evaluating four topic areas that are major concerns in both the water and power industries, and plan to have each webinar focus on one. We are open to volunteers who want to participate in the planning, or have case studies that they would like to present. The webinars will be free for attendees and we look forward to anther great year of collaboration with POWID. We all hope that 2023 will allow us to return to the in-person format that we had in the years before.

I wish everyone the best. Stay safe, stay healthy, and stay vigilant over your systems.

Warmest Regards,

Hassan Ajami, PE, CAP
2021-2022 Director-Elect, ISA WWID
2021-2022 General Chair, ISA EWAC
Vice President / Lead Technical Officer
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WWID WEBINARS

ISA & WWID Continue to Provide Virtual Events and Plan for 2022 and Beyond

From the WWID program committee

With the unprecedented cancellations of in-person events due to the COVID-19 pandemic, our industry has had to pivot to providing online events. Both the WWID and ISA as a whole, has been actively working to adapt to this new format.

For the WWID, this has meant providing a series of technical webinars for our members. We organized 4 webinars in 2020, 3 days of multiple webinars in 2021, and have already started planning our 2022 events. The Webinars are free, so we encourage you to register and attend future events. Keep an eye on the ISA website for more announcements.

In addition to WWID-associated events, the ISA has also embarked on providing a wide range online programming:

These include:

- Virtual Conferences
- Cybersecurity Series Webinars
- IIOT & Smart Manufacturing Webinars
- Digital Transformation Webinars
- Process Control and Instrumentation Webinars
- Division-Specific Webinars
- ISA Connect Live Events

Please visit www.isa.org/virtualevents for more information.

TECHNICAL ARTICLE

Still using 2G/3G SCADA modems? Plan to get them replaced with 4G/LTE

by Graham Nasby

Think 2G, 3G, 4G/LTE and 5G only apply to cell phones? Think again! These cellular technologies are also used for communication modems in many critical sectors such as power distribution, gas utilities, pipelines, and Municipal Water/Wastewater control systems.

If you are a Municipal Water or Wastewater utility make sure to regularly review which control system, fleet tracking, and SCADA modem technologies you are currently using. Cellular network providers are currently in the process of shutting down older 2G and 3G networks in order to make room for newer 5G and 6G networks. It is imperative that utilities transition away from older 2G and 3G equipment as soon as possible.

See below for more detailed technical information from the FCC in the United States. It's a similar situation at many other countries:

Phase Out of 3G Cellular Networks and Service

The Federal Communications Commission (FCC) has issued a reminder that "Mobile carriers are shutting down their 3G networks, which rely on older technology, to make room for more advanced network services, including 5G. As a result, many older cell phones will be unable to make or receive calls and texts, including calls to 911, or use data services. This will affect 3G mobile phones and certain older 4G mobile phones that do not support Voice over LTE (VoLTE or HD Voice)."

The plans and timing to phase out 3G services will vary by company and may change. Consult your mobile provider's website for the most up-to-date information.

- AT&T announced that it will finish shutting down its 3G network by February 2022.
- Verizon announced that will finish shutting down its 3G network by December 31, 2022.
- T-Mobile announced that it will finish shutting down Sprint's 3G CDMA network by March 31, 2022 and Sprint's 4G LTE network by June 30, 2022. It also announced it will shut down T-Mobile's 3G UMTS network by July 1, 2022, but has not yet announced a shutdown date for its 2G network.

If your mobile carrier is not listed here, you may still be affected. Many carriers, such as Cricket, Boost, Straight Talk, and several Lifeline mobile service providers, utilize AT&T's, Verizon's, and T-Mobile's networks.

TECHNICAL ARTICLE

New ISA Paper: How to Implement an Industrial Cybersecurity Program

From ISA news release

The International Society of Automation (ISA) and the ISA Global Cybersecurity Alliance (ISAGCA), with contributing author Gary Rathwell, have released a new white paper entitled, "Implementing an Industrial Cybersecurity Program for Your Enterprise."

ISA/IEC 62443 provides powerful tools to reduce the risk of financial, reputational, human, and environmental impact from cyber-attacks on Industrial Automation and Control Systems (IACS). ISA/IEC 62443 has been categorized as a "horizontal standard" by the International Electrotechnical Committee (IEC), validating its applicability for a wide range of industries. Any specific company is likely to find that while most of the standard applies to their IACS, parts of it may not. For example, some "normative requirements" that are appropriate for an interstate pipeline, may not be relevant to a chemical plant or a discrete manufacturing facility. There are also obvious differences between a large-scale corporation with many sites and thousands of employees, and a small company with a few dozen staff. It is therefore recommended that each company establishes their own IACS Cybersecurity Program to manage cybersecurity risks, and ISA/IEC 62443 2-1 provides guidance on how to establish such a security program for IACS asset owners.

The white paper is intended to summarize the guidance from the series of standards and address the specific needs of owner/operators of industrial facilities. The paper covers the following topics:

1. What is an IACS cybersecurity program?
2. Preparing an IACS cybersecurity program
3. How does an IACS cybersecurity program relate to IT cybersecurity?
4. Costs and benefits of an IACS cybersecurity program
5. What to do next

"Creating an IACS cybersecurity program is approachable, and companies should be working with their vendors and partners to build such a program if they don't already have one in place," said contributing author Gary Rathwell. "This paper gives a foundation for building a program, and there is no time to waste for companies and organizations looking for protection from, and mitigation of, cyber incidents."

Download it form here: https://gca.isa.org/implementing-an-industrial-cybersecurity-program-for-your-enterprise

In the coming months, ISAGCA plans to publish additional white papers intended to guide IACS vendors, suppliers of IACS products and services, integration/engineering services, and other stakeholders as they prepare IACS cybersecurity programs within their facilities and operations.

TECHNICAL ARTICLE

The All Electric Society: What is it, and how does it relate to Water?

By Don Dickinson, Phoenix Contact

Water is a finite resource. Of all the water on earth, less than one per cent is available as fresh water for use in the home, agriculture, or industry. Limited water resources coupled with an ever-growing demand to support growing populations, economic development, and carbon-based energy production have created significant challenges for a resilient and sustainable future.

At the heart of this conversation is the link between water and energy infrastructure. Water and energy systems are interdependent. Water is used in all phases of energy production - especially the generation of electricity. Nearly half of all water withdrawn in the U.S. keeps power plants cool enough to function safely and efficiently. Further, a substantial amount of water is required for hydraulic fracturing (fracking) and other fossil fuel production processes. On the flip side, a massive amount of energy is needed to extract, treat, and distribute potable water, and to treat wastewater before returning it to the environment.

A new dimension in the water/energy infrastructure relationship is the impact from weather and the environment as was tragically illustrated in the aftermath of Hurricane Ida which struck the Louisiana coast on August 29th. Ida left hundreds of thousands without power as the result of serious damage to power distribution systems, and without water due to water systems crippled by power outages or flood waters. Additionally, Ida knocked out most of the Gulf of Mexico oil and gas production operations impacting both fuel supplies and market prices. As noted in a U.S. Department of Energy report, "It is time for a more integrated approach to address the challenges and opportunities of the water-energy nexus."

The "All Electric Society" is an emerging concept that encompasses a wide range of needs, including the need for water and energy systems of the future that are resilient and utilize energy in the most efficient manner possible. To learn more about the All Electric Society, I spoke with Arnold Offner, the Strategic Marketing Manager for Process Automation Infrastructure, Phoenix Contact USA in Harrisburg, PA. Mr. Offner has more than three decades of experience in the global Instrumentation and Control Industry and has taken a lead role in promoting the All Electric Society (AES) concept on behalf of Phoenix Contact.

Don: ***So Arnold, what is the All Electric Society? And what is its goal?***

Arnold: The vision of an All Electric Society is a world in which its entire energy needs will be met through renewable sources, and where renewably-generated electrical energy is available in sufficient quantities where consumed and affordable for all its inhabitants.

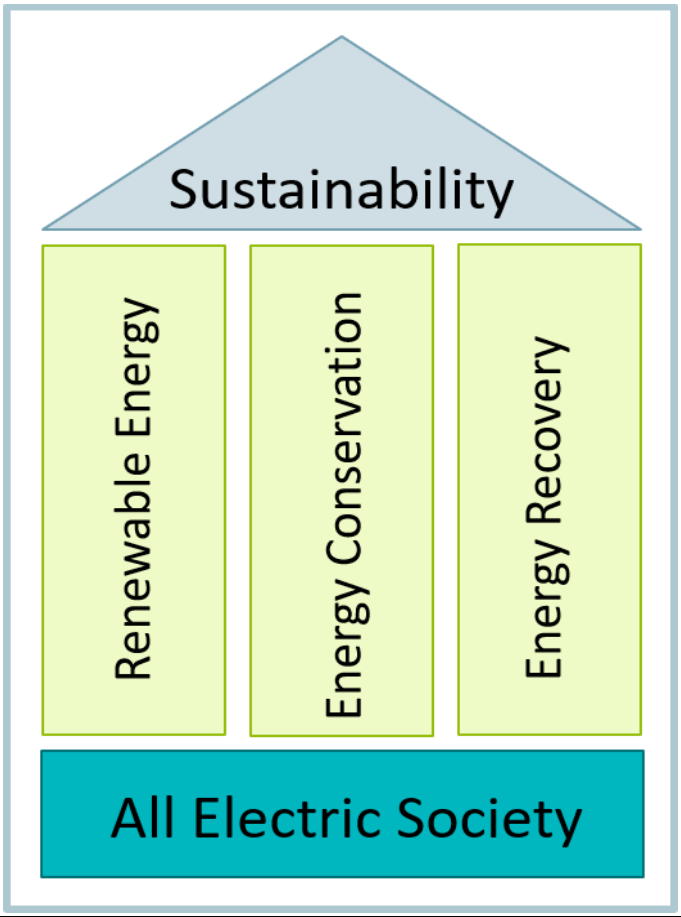
There are two major issues that our society currently faces – the fight against climate change and the billions of people striving for prosperity and development. At first glance these two dynamics seem to be contradictory and irreconcilable. However, they can only be addressed simultaneously. The challenge is to permit smart consumption but protect the climate at the same time.

The goal of the All Electric Society is to ensure sustainable global development that raises the standard of living for all while conserving our natural resources. Water is one such natural resource, and as you mentioned, Don, it is finite.

Don: ***Why is your company getting behind AES?***

Arnold: For Phoenix Contact both the efficient use of resources and electrical energy conservation is part of our DNA. And this effort complements industry's need to secure their facilities, increase efficiency, reduce waste, and raise productivity. Actually, sustainability is a rallying cry for all in industry and Phoenix Contact will be collaborating with many on this initiative.

Technical innovations and methods will play a crucial role in tackling these issues. At Phoenix Contact we believe this includes the comprehensive electrification, networking, and automation of all sectors of the economy and infrastructure. Together with applied technology, and with our customers and partners, we can ensure a sustainably designed and resilient world and take responsibility for people and the environment.



Don: ***Does AES mean the end to the oil and gas industry?***

Arnold: No, but its importance will be reduced, more so in some market segments than others. In AES, electricity from renewable sources is the primary energy source. We have all seen energy generation investments that include hydro, solar and wind which will accelerate our reduced dependence on carbon-based energy.

Supply stability and comprehensive coupling of the sectors is achieved when the excess capacity of electrical primary energy is transformed to other energy sources using a method called "Power-to-X." In this case, "X" refers to energy-rich gases, liquids, or chemicals based on hydrogen, ammonia or algae, which are known as e-fuels. They have the potential to gradually replace fossil fuels dominance in the future. The major advantage is that we can continue to use the existing infrastructure for storage and transport including the gas pipelines, gas storage, and gas supply stations.

However, to generate sufficient momentum for the energy revolution, solutions for AES must be as economical and cost-efficient as possible. The path to achieving this goal requires the "smartification" and comprehensive networking of all sectors that generate and consume energy.

Don: ***How do you see AES in the context of the water industry?***

Arnold: From the broad perspective of AES, water is one of our most important natural resources. While parts of the world experience droughts and shortages, there is also an abundance in other parts of the world. Today, many do not yet have access to clean or potable water. It is important that we develop techniques to conserve and provide this resource to all. But Don, I would love to hear your perspective since you have been involved in numerous water-related initiatives over the past decade.

Don: Yes, there are many initiatives that are being promoted by water industry groups, government agencies and utilities that tie into this discussion. Many utilities are implementing principles of AES even if they don't realize they are.

A good example that links AES with Water is the vote back in September by the Los Angeles City Council to implement LA100, a plan for the LA Department of Water and Power (LADWP) - the nation's largest utility to transition to 100% clean energy by 2035. The plan is to replace LA's natural gas electricity generation with wind, solar and battery storage. It is an aggressive plan but is a clear indication of where we are heading.

However, AES is more than reducing the use of carbon-based energy with renewable energy. It also involves conserving energy through energy efficiency, an important component of the LA100 plan to cut demand. Per the Environmental Protection Agency (EPA), drinking water and wastewater plants are the largest energy consumers for many municipal governments, often accounting for 30-40% of total energy consumed by the municipality while emitting over 45 million tons of greenhouse gases annually. Municipalities can reduce energy consumption by 15-30% and significantly reduce costs by incorporating energy efficiency practices.

Of course, there are many other examples of how the AES conversation is playing out in the water sector while encompassing the concept of the circular economy through resource and energy recovery. Wastewater treatment plants (WWTPs) are evolving into water resource recovery facilities (WRRFs) that produce clean water, nutrients, valuable bio-based materials, and renewable energy from wastewater.

In 2021 Kansas City Water (KC Water) completed construction on the Blue River Biosolids Improvement Facility to reduce both the cost and environmental impact from wastewater treatment. The innovative process will produce biosolids, and biogas that can be used as a source of energy. The biogas will be used to power the city's fleet of clean gas vehicles, and to produce electricity. So, another example of the relevance of AES in the municipal water sector.

Reduced dependency on carbon energy, increased efficiency, and energy recovery are all important facets of the conversation. Ultimately, the goal of AES is sustainability – a critical issue for essential water and wastewater infrastructure that is decades old, in some cases more than 100 years old. However, a prerequisite for sustainability is resilience. Resilient infrastructure is the foundation of sustainable infrastructure, which is why resilience and sustainability, key tenets of AES, have been a focus for the water sector for a long time.

One last point which is an important one. A report by the World Economic Forum Davos published in 2020 found that technology and technical innovations will play a critical role in achieving many of the United Nations' 17 Sustainable Development Goals – the majority of which relate to electricity. More specifically, Goal number 7: Clean, Affordable Energy, is the key to realizing the All Electric Society. Given the critical role of technology and technological innovation in meeting these vital goals, members of the ISA Water and Wastewater Industry Division will likely be key contributors in finding the solutions that enable resilient and sustainable water infrastructure of the future.

Arnold: Thank you, Don. I expect us to keep discussing the topic in the coming decade. And I expect more people in the water industry to provide us with great ideas and examples. These can all be repeated across the globe and benefit everyone.

Don: And thank you, Arnold, for the introduction to the All Electric Society, and its promise of sustainable, global development of the future.

For more information on the All Electric Society contact Arnold Offner at aoffner@phoenixcontact.com

TECHNICAL ARTICLE

Quick-thinking Instrumentation Repair at the Ma On Shan Water Treatment Works

By Samuel Ko Tak Shun, Hong Kong Water Department

The Ma On Shan Water Treatment Works is a major drinking water treatment plant in the New Territories region of Hong Kong. Rated at 227, 000 m3/day (60 MGD], the facility provides water to the Sha Tin and Ma On Shan areas of the territory. The plant was commissioned in 1997 and is a conventional surface water treatment plant.

The plant's treatment process is as follows: Raw water is pumped int the plant from the Plover Cove and High Island reservoirs. The raw water is first screened, exposed to activated carbon to counter volatile organics, and then mixed with several treatment chemicals for pH correction, manganese removal, and taste/odor control, and to encourage flocculation. The water then flows by gravity through sand/anthracite filter beds, into a contact chamber for chlorine addition, then to a clear well for storage, and then finally to high lift pumping for distribution. The individual filter beds have a fully automated backwash sequence using both air scouring and reverse water flow to remove trapped particles. The backwash water is treated on site.

On August 9, 2019 as part of routine maintenance of one of the filter beds, one of the discharge magnetic flowmeters (and its associated flow control valve) had to be calibrated. The two work together as a pair to ensure that the filter is operated at a flow rate for maximum efficiency. The filter in question is very large, with it being over 36 feet in height and having a footprint of over 50 feet x 50 feet.

While we successfully calibrated the zero and span of the 4-20mA signal from Flow transmitter to its desired range and started to reconnect the analog multimeter probes to the Flow transmitter output for measurement purposes, we saw a spark appeared instantly on the connection point.

We immediately measured the current on the 4-20mA signal from the flowmeter that feeds back to both the PLC and to a positioner input on the filter discharge valve. We found it had gone down to 0mA (no current!) In addition, we also found all the PLCs in the FCC2 Control panel of the FCC control room were shut down. We suspected fuses somewhere had blown up. in the control panel of the control room.

As part of the design of the filter, the discharge valve has been designed as reverse-acting, meaning that the valve would be fully open when there was a low flow, and the valve would start to close as the flow signal increased. Since the flow signal was not at 0mA, this meant the valve was now staying in the 100% open position. Thus, in its current state, the valve would remain open and the downstream clear well would soon overflow.

There was only enough room in the clear well for approximately 15minutes worth of this high rate of flow, so we had to act quickly. If the situation continued for over 15 minutes, overflow of filter tank would occur, and excess water would flood the neighboring areas outside the Water Plant. Obviously this would not be desirable!

Because the plant had been recently built, we were lucky to have a a very good set of documentation. A clear set of PLC Panel Drawings and ISA-5.4 Loop drawings were readily available in the PLC Panel, so we could trace the cables.

We first tracked down the associated cable numbers: X-305-6-5 and X-305-6, of the 2 input cables of the related Flow Transmitter and we then found out their related 2 fuses location numbers from instrumentation loop drawings. We then rushed to the located 2 fuses to perform continuity tests. As suspected, the two fuses were found to be bad. (They had likely blown when the spark was observed earlier.)

We then ran back to our Instrument store a few blocks away to pick up new fuses with appropriate Ampere ratings to replace the 2 faulty ones. Once the two fuses were replaced, the Filter Discharge Valve resumed working properly, and the PLC-driven HMI in the control room started to show the correct values.

We then spent the next 1-2 hours working with the control room operator to ensure the filter bed levels and flow rates returned to their normal operating conditions. Thankfully we had avoided any filter or clear well overflows.

Photo left is of the Filter #12 outlet flowmeter, which is a differential pressure transmitter fitted on a venturi flume. Photo of the plant is shown on the right.

About the Author;

Samuel Ko Tak Shun is a Work Supervisor I & II (Instrumentation) of the Hong Kong Water Division. In 1991 he earned a diploma in Technology in Electronics: Process Automation and Instrumentation Option from the British Columbia Institute of Technology, Vancouver, Canada. and an MBA from European University, Montreux, Switzerland, in 2014 September. I am a Senior member of ISA right now starting from 2015. Contact: samuelshun@yahoo.com.hk

ISA ADVISORY

CISA "Shields Up" Advisory: Potential Russian Cyber Attack Escalation

From ISA news release

The Cybersecurity & Infrastructure Security Agency (CISA), the United States' cyber defense agency, has issued a recommendation for US companies to be on high alert for potential cyber attacks from the Russian government.

According to the advisory, "The Russian government understands that disabling or destroying critical infrastructure—including power and communications—can augment pressure on a country's government, military and population and accelerate their acceding to Russian objectives."

Organizations are always at risk from cyber threats, but more organizations in more sectors have seen attacks over the last few years. In 2015, Russia delivered a crippling attack on Ukraine's power grid, resulting in outages for nearly 230,000 customers. The attack took place during a Russian military invasion, and it is the first publicly acknowledged successful cyberattack on a power grid. The advanced persistent threat group known as "Sandworm" is thought to be the orchestrator of that attack.

CISA's recommendations are centered around being proactive, rather than reactive, when facing cybersecurity threats. Adopting industry standards is recognized as the best way to consistently mitigate risk and ensure a strong posture against cyber-attacks.

The ISA/IEC 62443 series of standards is the world's only consensus-based cybersecurity standard for automation and control system applications. These standards codify hundreds of years of operational technology and IoT cybersecurity subject matter expertise. Using the ISA/IEC 62443 series of standards as a foundation, companies can focus on adopting security as part of the operations lifecycle, ensuring compliance with various aspects of the standards across their supply chains, and including cybersecurity in operational risk-management profiles.

In addition to leveraging the ISA/IEC 62443 standards, companies should be thinking about the following aspects of defense given the recent geopolitical climate:

- Validating that all remote access to the organization's network and privileged or administrative access requires multi-factor authentication
- Ensuring that software is up to date, prioritizing updates that address known exploited vulnerabilities identified by CISA
- Confirming that the organization's IT personnel have disabled all ports and protocols that are not essential for business purposes; if the organization is using cloud services, ensure that IT personnel have reviewed and implemented strong controls outlined in CISA's guidance
- Ensuring that cybersecurity/IT personnel are focused on identifying and quickly assessing any unexpected or unusual network behavior. Encourage low-threshold reporting and consistent logging of issues
- If working with Ukrainian organizations, take extra care to monitor, inspect, and isolate traffic from those organizations; closely review access controls for that traffic. If you are a small or medium sized firm in the Ukraine, check out Dragos' recent offer to onboard your organization at no cost (first come, first serve)
- Designating a crisis-response team with main points of contact for a suspected cybersecurity incident and roles/responsibilities within the organization, including technology, communications, legal and business continuity; get engaged in ICS4ICS long-term to have a proven plan for responding to incidents
- Testing backup procedures to ensure that critical data can be rapidly restored if the organization is impacted by ransomware or a destructive cyberattack; ensure that backups are isolated from network connections

CISA urges cybersecurity, OT, and IT personnel at every organization to review, "Understanding and Mitigating Russian State-Sponsored Cyber Threats to U.S. Critical Infrastructure." CISA also recommends organizations visit StopRansomware.gov, a centralized, whole-of-government webpage providing ransomware resources and alerts.

AUTO-QUIZ: BACK TO BASICS

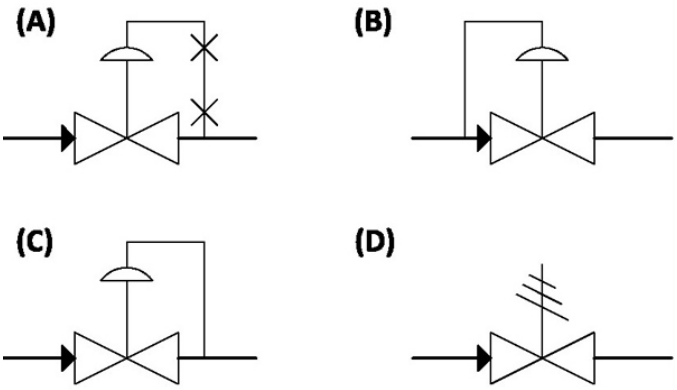
Temperature Regulators

From the ISA Certification Program

This automation industry quiz question comes from the ISA Certified Automation Professional (CAP) certification program. ISA CAP certification provides a non-biased, third-party, objective assessment and confirmation of an automation professional's skills. The CAP exam is focused on direction, definition, design, development/application, deployment, documentation, and support of systems, software, and equipment used in control systems, manufacturing information systems, systems integration, and operational consulting.

Question:

In the post image, which symbol from ISA-5.1-2009 - *Instrumentation Symbols and Identification* is used to indicate a temperature regulator?



Answer:

Answer B is incorrect because the symbol represents a back pressure regulator, external pressure tap.

Answer C is incorrect because the symbol represents a pressure reducing regulator, external pressure tap.

Answer D is incorrect because the symbol does not exist in ISA-5.1-2009.

The correct answer is A; this symbol reflects a temperature regulator, filled thermal system.

Reference: ANSI/ISA-5.1-2009 - Instrumentation Symbols and Identification

ISA CAP and CCST certification programs provide a non-biased, third-party, objective assessment and confirmation of an automation professional's skills.

The CAP exam is focused on direction, definition, design, development/application, deployment, documentation, and support of systems, software, and equipment used in control systems, manufacturing information systems, systems integration, and operational consulting.

Certified Control System Technicians (CCSTs) calibrate, document, troubleshoot, and repair/replace instrumentation for systems that measure and control level, temperature, pressure, flow, and other process variables.

Question originally appeared in the ISA Certified Automation Professional; (CAP) program column of https://blog.isa.org.

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(https://blog.isa.org/autoquiz-pid-symbol-temperature-regulator)

SOCIETY NEWS

The Future of ISA is Now

By Carolos Mandolesi, 2022 ISA Society President

When I was a candidate for the position of President of ISA, I wrote an article about the future of ISA. Our Past-President, Steve Mustard, wrote in his last column in December that time flies, and I could not agree more with him as we are now in 2022. I am starting my term as President of the International Society of Automation (ISA). I will have the honor to lead the Executive Board to define and execute our strategies to operate ISA in the present year and think about our opportunities for the future.

As this is my first article as President, I'd like to remember the components of our strategy that includes our vision, mission, and values. We need to live our strategy, and all of our members and volunteers, from the sections and divisions to our staff, need to take them into consideration in all that we do. Every time we have an idea, we need to check if it will help us achieve our vision, mission, and is aligned with our values.

Vision: Create a better world through automation

Mission: Advance technical competence by connecting the automation community to achieve operational excellence

Values

- **Excellence**: We provide industry-leading, unbiased content developed and vetted by a community of experts
- **Integrity**: We act with honesty, integrity, and trust—respecting others in all that we do
- **Diversity and Inclusion**: We are committed to being a global, diverse, and inclusive organization
- **Collaboration**: We seek out opportunities to work together for the benefit of the Society, its members, and our profession
- **Professionalism**: We uphold the highest standards of competence and skill in everything we do

During the last month of 2021, the Executive Board reviewed ISA's strategy, defined our objectives, and introduced the concept of key results that will allow us to measure our progress.

Key Results that we will focus on during 2022:

- Grow our professional membership by 2%
- Increase ISA's audience in specific target segments by 5%
- Increase ISA's non-US audience in specific target segments by 10%
- Increase total training attendees by 5%
- Increase in non-US training participation by 2%
- Increase certificates and certifications by 5%
- Improve Leader Satisfaction Score by 2%

I am thrilled that one of our key results is to increase our membership. Members are the essence of ISA, and they are the main reason we exist. We need to know our members, and members need to be aware of and use the benefits that ISA offers to them.

Every month, I will highlight what's going on at ISA that is of importance to our members:

ISA's new headquarters will be ready in Jan/Feb. It will be a multi-use, leased space that includes areas for collaboration, training, meetings, and warehouse space for inventory and storage.

Our new Executive Director, Claire Ramspeck, started in November 2021. I am sure that she will bring many new ideas based on her previous experience at other associations such as ASME, ASHRAE, and ANSI.

After many years of discussing the need to grow internationally, **ISA will finally start the implementation of a new Globalization Framework**, a plan to implement the recommendations of the Globalization Task Force to become a truly international Society.

A **new District structure** was implemented this month, reducing the number of districts from 14 to 8, to allow better support to our global expansion.

ISA will **expand its international events in 2022**, including events in Malaysia, Saudi Arabia, Brazil, and India.

We're planning to have our **annual leadership conference (ALC) in-person again**, combined with a technical event after two years of virtual events due to the pandemic.

Our **marketing team is improving the user experience of our website** (isa.org) that will have an improved look and feel. Many relevant articles are posted monthly on our two blogs (ISA Interchange and ISAGCA).

Various improvements of ISAConnect to launch this year.

Register here for our **upcoming virtual events**, FREE to all members.

This year, we will launch a new **leadership training and development program**.

I have heard many times from members around the globe that ISA needs *to do this or that*. We need to remember that WE are ISA. ISA is formed by its members, volunteer leaders, and staff, and WE are the ones that can "do this or that" to create the ISA we want to be. I love to connect with our members and listen to their opinions about automation, about what ISA is doing now, and about what ISA should be doing to answer their needs. Please connect with me on ISAConnect, LinkedIn, or send an email to president@isa.org.

Warmest Regards,

Carolos Mandolesi
2022 ISA President

Call for Newsletter Articles

The WWID newsletter is published four times a year (winter, spring, summer, and fall) and reaches the WWID's 2,000+ members. Each issue is approximately 16-32 pages long, and is electronically printed in color PDF format. A notification email goes out to all WWID members and it is available for public download at www.isawaterwastewater.com.

We are always on the lookout for good articles, and we welcome both solicited and unsolicited submissions.

Article submissions should be 500-2000 words in length and be written for a general audience. While it is understood that the articles are technical in nature, the use of technical jargon and/or unexplained acronyms should be avoided. We actively encourage authors to include several photos and/or figures to go along with their article.

We actively welcome articles from all of our members. However, we do ask that articles be non-commercial in nature wherever possible. One or two mentions of company and/or product names for the purposes of identification are acceptable, but the focus of the article should be technical content and not just sales literature. If you are unsure of whether your article idea is workable, please contact our newsletter editor for more information – we are here to help.

Some examples of the types of articles we are looking for include:

- Explanatory/teaching articles that are meant to introduce or explain a technical aspect of automation and/or instrumentation in the water/wastewater sector.
- Biographical stories about personalities and/or leaders in the water/wastewater sector.
- Case Studies about plant upgrades and/or the application of new technologies and techniques. This type of article must include at least two photos along with the article text.
- Pictorial Case Studies about a plant upgrade consisting of 4-6 photos plus a brief 200-500 word description of the project undertaken. The article should ideally include one to two paragraphs about lessons learned and/or advice for other automation professionals.
- Historical reflections on changes in technology pertaining to specific aspects of instrumentation or automation, and how these changes point to the future.
- Discussions about changes in the water/wastewater sector and how these affect automation professionals.

Once we receive a submission, we will work with you to edit it so it is suitable for publication in the newsletter.

Article submissions can be sent to the WWID newsletter editor Graham Nasby at graham.nasby@grahamnasby.com .

WWID Newsletter Advertising

The WWID newsletter is an excellent way to announce new products and services to the water/wastewater automation community. With a distribution of 2,000+ professionals in the automation, instrumentation and SCADA fields, the WWID newsletter is an effective targeted advertising tool.

The WWID newsletter is published quarterly, on the following approximate publication schedule:

- Winter Issue – published in January/February
- Spring Issue – published in April/May
- Summer Issue – published in July/August
- Fall Issue – published in October/November

Advertising in the newsletter is offered in full page, half-page and quarter page formats. Advertisements can be purchased on a per issue basis or for four issues at a time. The newsletter itself is distributed as a full-color PDF, so both color and black/white artwork is acceptable.

The current advertising rates are as follows:

Per Issue:
- Full page, full color (7" x 9"): $500
- Full page, full color, (8.5x11"), with bleed $600
- Half page horizontal, full color (7"x4.5"): $350
- Half page vertical, full color (3.5"x9"): $350
- Quarter page, full color (3.5" W x 4.5" H): $250

Per Year: Apply 20% discount if purchasing 4 ads at a time

Other sizes of advertisements are available, but are priced on an individual basis. Contact us for more information.

Please book advertising space as early as possible before the intended publication date. Artwork for advertisements should be submitted a minimum of two weeks prior to the publication date; earlier is always better than later. Artwork for advertisements can be submitted in EPS, PDF, PNG, JPG or GIF formats. EPS, PDF and PNG formats are preferred. Images should be at least 300dpi resolution if possible. A complete list of ad specs can be found at www.isawaterwastewater.com .

The ISA Water/Wastewater Industry Division is run on a non-profit basis for the benefit of its members. Monies raised from the sale of advertising in the newsletter are used to help offset the cost of division programming and events. Like its parent organization, the ISA, the WWID is a non-profit member-driven organization.

For more information, or to discuss other advertisement sizes not outlined above, please contact the WWID newsletter editor Graham Nasby at graham.nasby@grahamnasby.com .

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About the ISA Water/Wastewater Industries Division

The ISA Water / Wastewater Industry Division (WWID) is concerned with all aspects of instrumentation and automated-control related to commercial and public systems associated with water and wastewater management. Membership in the WWID provides the latest news and information relating to instrumentation and control systems in water and wastewater management, including water processing and distribution, as well as wastewater collection and treatment. The division actively supports ISA conferences and events that provide presentations and published proceedings of interest to the municipal water/wastewater sector. The division also publishes a quarterly newsletter, and has a scholarship program to encourage young people to pursue careers in the water/wastewater automation, instrumentation and SCADA field. For more information see www.isa.org/wwid/ and www.isawaterwastewater.com

ISA Water/Wastewater Industry Division